

EHS Bulletin

A quarterly update increasing awareness and understanding of the interaction between human health and the environment



A Quarterly Update

Issue 2 -- Winter 2012

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Message from the Editor

Welcome to the new *Environment, Health and Society* research methods bulletin. Every quarter, this bulletin will feature a method for evaluating the interaction of human health and the environment, explaining and providing information and news about the featured method.

In conjunction with the soon-to-be-launched *Environment, Health and Society* website, this bulletin seeks to bridge the gap across disciplines in an effort to transform human health and environmental protection. In this edition of the bulletin we feature an examination of the qualitative methods by Madeleine Scammell, a STAR Grantee who explains the reason-



ing and application of qualitative methods in depth. We also look at STAR Fellow Daniel Sarna's plan to apply qualitative approaches to measure the effectiveness of the interactions of groups and organizations responsible for the watershed in the Klamath Basin of Oregon and California.

Each issue of the bulletin will also include information about conferences, resources and articles about research methods.

EHS Bulletin listserv is sponsored by the Environmental Protection Agency (EPA) and managed through the EPA's National Center for Environmental Research (NCER) in the Office of Research and Development (ORD).

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The Value of Qualitative Data in Environmental Health Research

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Introduction

In response to President Clinton's 1994 mandate that all federal agencies achieve environmental justice, the U.S. EPA and several agencies launched programs requiring community-university research partnerships. In 1999 the National Academy of Sciences' Institute of Medicine (IOM) published *Toward Environmental Justice: Research, Education, and Health Policy Needs* in which several pages are devoted to the topic of participatory research as a method for addressing health disparities and environmental injustice. By suggesting participatory research, the IOM report called into question the dominant perception that the inclusion of those most affected by study findings threatened scientific objectivity. Participatory research, or community-based participatory research, taps lay knowledge of disease and environment and incorporate this knowledge in a mutual exchange between lay people and scientific experts (Macaulay et al. 1999; Scammell and Dearth, 1997; Shepard et al. 2002). Qualitative research methods may be an important vehicle for the rigorous inclusion of lay knowledge in environmental health research.



Qualitative research has highlighted the stories of residents who identified environmental health problems and have been the impetus behind environmental health studies (Brown and Mikkelsen, 1990; Corburn 2005; Levine 1982; Reich 1991; Sze 2007). In addition to detailing the process of the social discovery of environmental health hazards, qualitative research may identify perceptions of environmental health that influence the exposure – disease relationship. Qualitative data contribute to the understanding of risk factors for population exposures by providing insight into people's behaviors, perceptions of risk, and the social, economic, cultural and political considerations that influence personal exposure to environmental

health hazards. While risk assessments and epidemiologic studies are observational and conducted in the natural world, they do not explicitly study the social world, but they may.

Basics of Qualitative Methods

Qualitative methods are used in a number of different disciplines including sociology, anthropology, economics, education, health care, and political science. The term, qualitative research, frequently refers to a variety of approaches and techniques that may vary depending on the area of research (Snape and Spencer, 2003). What they share in common, besides the use of nonnumeric data about exposures and outcomes, is the recognition that when studying the social world methods must allow for the analysis of the construction of socially and cultur-

ally derived meaning, and human interpretation of reality. This is based on the premise (sometimes called interpretivism) that perception of reality is seen and experienced from different perspectives (it is subjective; cf. Ulin, Robinson, and Tolley, 2005). What is perceived by one individual or culture shapes that person's reality regardless of whether or not the same phenomenon is perceived as false or nonexistent by another. Qualitative studies are generally designed to explore perceptions of reality, or more specifically, perceptions of a phenomenon.

Despite the diversity of disciplines where qualitative methods are used, there are a number of common features of qualitative research, four of which are summarized here:

Approaches to data collection.

Sources of qualitative data can be grouped into three categories, each of which represents a different approach to data collection:

- Interviews: one-on-one and group interviews (e.g., focus groups) ask open-ended questions to yield in-depth responses about people's experiences, perceptions, opinions, feelings and knowledge.
- Observations: fieldwork descriptions of activities, behaviors, actions, relations, interactions, conversations, and any other observable human experience in a given context or setting.

- Documents: written materials and texts including government publications and reports, clinical records, archival documents and transcripts, personal letters, memoranda and correspondence, newspaper articles, and other media outlets. (Patton 2002)

**QUALITATIVE STUDIES ARE
DESIGNED TO EXPLORE
[SUBJECTIVE] PERCEPTIONS
OF A PHENOMENON**

Qualitative studies often rely on more than one approach to data collection and a variety of techniques. For example, a case-study of occupants of a sick building may include document analysis of correspondence between risk assessors and management, one-on-one interviews with management, and focus group interviews with residents. One-on-one interviews and focus groups rely on open-ended questions. The ability to ask an open-ended question is considered a skill of the well-trained qualitative researcher (Sofaer 1999). Open-ended questions enable the researcher to hear and make sense of a response from someone being interviewed without predetermining their points of view by response categories fixed by the researcher ahead of time, as in quantitative survey methodology. Questions likely to elicit a "yes" or "no" response, are

not open-ended, nor are questions that lead people to a pre-structured type of response, for example: not stressful, somewhat stressful, very stressful. Instead, open-ended questions are a window into reality as perceived by interviewees, and well constructed open-ended questions do not indicate preconceived notions of the researcher that would constrain a description of the world as the subject sees it (Patton 2002). By contrast, conventional survey methods identify the possibilities ahead of time and do not allow for additional, surprising, or multifaceted responses.

Analysis.

Analysis of qualitative data requires some degree of abstraction or generalization as patterns are identified in the data and related to larger constructs or theories. A definition of theory frequently cited by qualitative scholars is "a set of interrelated constructs, definitions, and propositions that present a rational view of phenomena by explaining or predicting relationships among those elements" (Ulin, Robinson, and Tolley, 2005). This may also be described as a process of moving from close examination of individual trees in a forest to an understanding of groups of trees and how they relate to each other to comprise the forest. In order to move from seeing trees to the forest, qualitative researchers often rely on a process described as coding. Codes are descriptive words

and phrases used to tag associated data. For example, an analyst may initially code every feeling in the data by its own code (sad, frustrated, denial, fear, anger, apathy,). These codes may then be grouped under another more encompassing or major code such as “emotion.” Eventually these may be grouped under a thematic category that has been identified by the analyst(s) (Bogdan and Biklen, 1982), for example “negative emotions.” Some analysts refer to “indexing” data, instead of “coding.” Coded or indexed data ultimately become the basis for themes, and then concepts that are related to conceptual frameworks or theories (see Figure.) The final step in the analysis of coded data is the development of concepts. Concepts ultimately transform the data from pieces of information into something that is meaningful. Arriving at analytic concepts requires looking for positive and negative patterns among themes; and regularities, contrasts, and paradoxes within the data. Qualitative analysis examines relations between variables, which are critical to the development of theory. Analytic concepts are themselves the analysts’ contribution to the development of theory. However, coding data (e.g., interview transcripts) also enables analysts to retrieve codes and associated data, and assign values of frequency (commonly done in content analysis), presence/absence and relationship with other codes (MacQueen et al. 1998).

Theory.

Most qualitative researchers would agree that one objective of qualitative research is to contribute to theory (Patton 2002). However, there are differences in opinion about the extent to which specific theories should inform qualitative analysis. Proponents of “grounded theory” research suggest that analysts approach the data with no substantive theories in mind. All theories that emerge from the analyses are to be grounded entirely in the data, without preconceived notions of theories to which the findings may contribute. Grounded theory, which is strongly dependent on the process of coding, was developed by qualitative researchers attempting to formalize their empirical methods when quantitative research was dominant in behavioral and social sciences (Snape and Spencer, 2003), and has frequently been cited by traditionally quantitative public health researchers using (Cooper et al. 2004; McKibbin and Gadd, 2004; Scammell 2010; Straus et al., 2004).

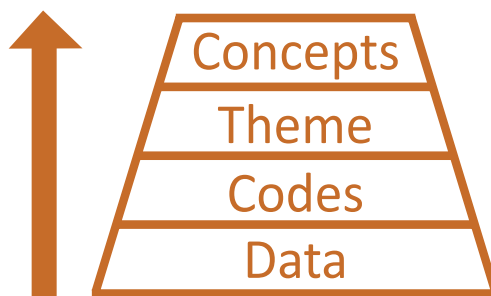


Figure: Qualitative Data Analysis — from codes to analytic concepts

Output.

Qualitative findings produce large amounts of data. One important aim of qualitative analysis is to

compress the data while allowing the voice of the participants to be heard (Stewart and Shamdasani, 1990). Qualitative research seeks to identify what is called the emic perspective (that of the ‘insiders’) and present data within this frame of reference or context (Bernard 2002). A common way to do this is by using quotes and narrative descriptions in the output of qualitative research.

Qualitative Methods in Environmental Health Research

A review of environmental health studies that included qualitative methods found that many of these studies examined psychosocial health effects, including social stress, associated with environmental pollution (e.g., noise, air, waste sites, and aspects of the built environment) (Scammell 2010). Some environmental health scientists are beginning to identify the physiological response to stress as an exposure, and mechanisms that contribute to outcomes including decreased cognitive function, abdominal obesity, hypertension and other cardiovascular and immune diseases (Krieger 2001; Peterson 1999; Schulz and Northridge, 2004). If stress is a psychological exposure and the response to stress physiological, understanding of the interaction of these processes may benefit from qualitative inquiry into the physical, sociocultural and political processes that shape environ-

mental conditions, perceptions of the environment, and health. Qualitative environmental health studies also elucidate ways research participants relate health concerns to the combined physical, psychological and social environments in which they live. Bolam et al. (2006) describe three interrelated domains of place-identity in qualitative accounts of health. These are psychological, social and material aspects of neighborhoods, or place.

EPA's 2009 funding announcement for Understanding the Role of Nonchemical Stressors and Developing Analytic Methods for Cumulative Risk Assessments indicated the importance of "determining which nonchemical stressors exacerbate chemical exposures." The announcement referred to physiological mechanisms by which stress can lead to health effects. However, scientists are learning that objective measures of stress (e.g. cortisol) are not necessarily based on objective perceptions of the world in which people live. In fact, recent research suggests that individuals exposed to stressful conditions early in life may present with low indicators of physiological stress in stressful conditions later in life, as we presently measure them. Likewise, we are learning that where you live for the first 15 years of life may have a long term effect on your response to stress.

My colleagues and I were recently awarded a star grant under the nonchemical stressors RFA. The focus of our research is to develop

methods for the analysis of how the combination of perception and objective measures of the both the environment and health may together affect health. For this reason we are using a combination of quantitative and qualitative research methods. We will collect qualitative and quantitative data during one-on-one interviews asking open and closed-ended questions. Our analyses will combine qualitative analyses described above, and hierarchical structure analysis. Specifically we will examine the structural relationships between groups of subjects and attributes they share, looking for patterns, hierarchical relationships and latent implications instead of statistical summaries. We refer to this analysis as the lattice method, which has extensive theoretical foundations in Formal Concept Analysis (Ganter and Wille, 1998). A full featured software



César Chávez High School (2007) in Houston Texas located near four petrochemical plants where the levels of carcinogens – 1,3-butadien, benzene and choloform – far surpassed federal limits.

suite that incorporates epidemiological measures and displays the lattice diagram has been developed by Dr. David Ozonoff at Boston University School of Public Health and Dr. Alex Pogel and collaborators at the Physical Sciences Laboratory at New Mexico State University

(Pogel and Ozonoff, 2008). With support from the Boston University Superfund Research Program, the software has been rewritten in Java for multiple operating system use, and like EPANET, is an open source non-commercial product under public license. It is not intended to be a substitute for statistical software suites like EpiInfo or SAS, but a method to provide another view of the data. This STAR grant is the first opportunity we will have to test the software for the analysis of qualitative and quantitative data in an environmental justice population.

The notion that aspects of where you live can affect your health is certainly not foreign to environmental health professionals. However, the extent to which we face the challenge of including social variables in our assessments of exposure and risk remains seen. Examination of social and structural forces, described as the "political economy" of environmental racism, is suggested for studying environmental injustice specifically: "This perspective examines the relationship among economic, political/legal, and social forces as they influence environmental decision-making processes and environmental outcomes" (Cole and Foster, 2001, p. 11). Ecosocial theory of disease distribution is a theoretical framework often described in the context of public health, and is based on the notion that health inequalities are biological expressions of social inequalities. The process by which this occurs

is called “embodiment.” Pathways of embodiment include “societal arrangements of power and property” as well as biology (Krieger 2006, p. 464). Similar approaches proposed by epidemiologists include “integrated epidemiology” (Levins 1995) and “ecological epidemiology” (Wing 1994; Brown 2000).

Conclusion

Environmental health research, including risk assessments, that include qualitative data may allow for the perspective that people who live in different contexts (e.g., neighborhoods with different racial compositions and socioeconomic environments) may have different social construction of knowledge. Qualitative environmental health research would enable examination of the possibility that social and structural, economic and environmental circumstances shape perspectives on health, environment and science (Rose 1997). While qualitative research methods do not use numbers to depict the world, there are well developed and highly rigorous techniques to produce reliable and accurate data, and enable deployment of theories to interpret the evidence it produces.

Recommended Additional Reading

- Corburn, J. (2002). Combining community-based research and local knowledge to confront asthma and substance-fishing hazards in Greenpoint/Williamsburg, Brooklyn, New York. *Environmental Health Perspectives*, 110(Suppl 2), 241-248.
- Brown P. (2003) Qualitative methods in environmental health research. *Environmental Health Perspectives*, 111(14):1789-1798.
- Jack, S. M. (2006). Utility of Qualitative Research Findings in Evidence-Based Public Health
- Lobdell, D. T., Gilboa, S., Mendola, P., & Hesse, B. W. (2005). Use of focus groups for the environmental health researcher. *Journal of Environmental Health*, 67(9), 36-42.

- Patton MQ. (2002) *Qualitative Research & Evaluation Methods* Thousand Oaks, CA: Sage
- Scammell MK. (2010) *Qualitative Environmental Health Research: An Analysis of the Literature 1991-2008*. *Environmental Health Perspectives* 118:1146-1154
- Ulin PR, Robinson ET & Tolley EE. (2005) *Qualitative Methods in Public Health* San Francisco: Jossey-Bass

References

- Bogdan, R., & Biklen, S. (1982). *Qualitative Research for Education: An introduction to theory and methods*. Boston: Allyn and Bacon, Inc.
- Bolam B, Murphy S & Gleeson K. (2006) Place-identity and geographical inequalities in health: A qualitative study. *Psychology & Health*, 21(3): 399-420.
- Brown P & Mikkelsen EJ. (1990) *No Safe Place: Toxic Waste, Leukemia, and Community Action* Berkeley: University of California Press
- Brown P. (2000) *Environment and Health*, In C.E. Bird, P. Conrad, and A.M. Fremont (Eds.) *Handbook of Medical Sociology* (5th Edition). Upper Saddle River: Prentice Hall.
- Bernard HR. (2002) *Research Methods in Anthropology: Qualitative and Quantitative Approaches* Walnut Creek: Altamira Press
- Cole LW & Foster SR. (2001) *From the Ground Up: Environmental Racism and the Rise of the Environmental Justice Movement* New York: New York University Press
- Cooper H, Moore L, Gruskin S & Krieger N. (2004) Characterizing Perceived Police Violence: Implications for Public Health. *American Journal of Public Health*, 94(7): 1109-1118.
- Corburn J. (2005) *Street Science: Community Knowledge and Environmental Health Justice* Cambridge: MIT Press
- Ganter B & Wille R. (1998) *Formal Concept Analysis: Mathematical Foundations*. New York: Springer.
- Krieger N. (2001) Theories for social epidemiology in the 21st century: an ecosocial perspective. *International Journal of Epidemiology*, 30:668-677.
- Krieger N. (2006) Researching Critical Questions on Social Justice and Public Health: An Ecosocial Perspective. In B.S. Levy & V.W. Sidel (Eds.), *Social Injustice and Public Health* (pp. 460-479). New York: Oxford University Press.
- Levine AG. (1982) *Love Canal: Science, Politics, and People* Lexington, MA: Heath
- Levins R. (1995) Toward an integrated epidemiology. *TREE*, 10(7): 304.
- Macaulay AC, Commanda LE, Freeman WL, Gibson N, McCabe ML, Robbins CM & Twohig PL. (1999) Participatory research maximises community and lay involvement. *British Medical Journal*, 319(7212), 774-778.
- MacQueen, K.M., McLellan, E., Kay, K., & Milstein, B. (1998). Codebook Development for Team-Based Qualitative Analysis. *Cultural Anthropology Methods*, 10(2), 31-36.
- McKibbin KA and Gadd CY. (2004) A quantitative analysis of qualitative studies in clinical journals for the 2000 publishing year. *BMC Medical Informatics and Decision Making*, 4:11
- Patton MQ. (2002) *Qualitative Research & Evaluation Methods* Thousand Oaks, CA: Sage
- Peterson CL. (1999) *Stress at Work: A Sociological Perspective*. New York: Baywood Publishing Company, Inc.
- Pogel A, Ozonoff D. “Contingency structures and concept analysis, in *Formal Concept Analysis*, in series *Lecture Notes in Computer Science*, Springer, Volume 4933/2008, DOI Berlin/Heidelberg, 10.1007/978-3-540-78137-0, 2008, pp. 305 - 320
- Reich MR. (1991) *Toxic Politics: Responding to Chemical Disasters* Ithaca: Cornell University Press
- Rose G. (1997) Situating knowledges: positionality, reflexivities and other tactics. *Progress in Human Geography*, 21: 305-320.
- Scammell MK. (2010) *Qualitative Environmental Health Research: An Analysis of the Literature 1991-2008*. *Environmental Health Perspectives* 118:1146-1154
- Scammell ML & Dearry A. (1997). *Advancing the Community-Driven Research Agenda*. In N.I.E.H.S. (Ed.), *Environmental*

- Justice & Community-Based Prevention/Intervention Grantee Meeting (p. 27). Research Triangle Park, NC.
- Schulz A & Northridge ME. (2004) *Social Determinants of Health: Implications for Environmental Health Promotion*. *Health Education & Behavior*, 31(4): 455-471.
- Shepard P, Northridge ME, Prakash S & Stover G. (2002). Preface: Advancing Environmental Justice through Community-Based Participatory Research. *Environmental Health Perspectives*, 110(Supplement 2): 139-140.
- Snape D & Spencer L. (2003) *The Foundations of Qualitative Research*. In J. Ritchie, & J. Lewis (Eds.), *Qualitative Research Practice: A Guide for Social Science Students and Researchers* (pp. 1-23). Thousand Oaks: Sage Publications.
- Sofaer S. (1999) *Qualitative Methods: What Are They and Why Use Them?* *Health Services Research*, 34(5): 1101-1118.
- Stewart DW & Shamdasani PN. (1990) *Focus Groups: Theory and Practice* Newbury Park: Sage Publications
- Straus SE, Wilson K, Rambaldini G, Rath D, Lin Y, Gold WL & Kapral MK. (2004) Severe acute respiratory syndrome and its impact on professionalism: qualitative study of physicians' behaviour during an emerging healthcare crisis. *British Medical Journal*, 329(7457): 83.
- Sze J. (2007) *Noxious New York: The Racial Politics of Urban Health and Environmental Justice* Cambridge: MIT Press
- Ulin PR, Robinson ET & Tolley EE. (2005) *Qualitative Methods in Public Health* San Francisco: Jossey-Bass
- Wing S. (1994) *Limits of Epidemiology*. *Medicine & Global Survival*, June 1994, 1(2): 74-86.



Featured Science Article — Climate change health assessment: A novel approach for Alaska native communities

SHUTTERSTOCK

Abstract—

Objectives. Develop a process for assessing climate change impacts on public health that identifies climate-health vulnerabilities and mechanism and encourages adaptation.

Study Design. Multi-stakeholder, participatory, qualitative research.

Methods. A Climate Change Health Assessment (CCHA) was developed that involved 4 steps: (1) scoping to describe local conditions and engage stakeholders; (2) surveying to collect descriptive and quantitative data; (3) analysis to evaluate the data; and (4) planning to communicate findings and explore appropriate actions with community

members. The health effects related to the extreme weather, thinning ice, erosion, flooding, thawing permafrost and changing conditions of water and food resources were considered.

Results. The CCHA process was developed and performed in northwest Arctic villages. Refinement of the process took place in Oint Hope, a coastal Inupiat village that practices whaling and a variety of other traditional subsistence harvest practices. Local observers identified climate change impacts that resulted in damaged health infrastructure, compromised food and water security and increased risk of injury. Priority health issues includ-

ed thawing traditional ice cellars, diminished quality of the community water source and increased safety issues related to sea ice change. The CCHA increased awareness about health vulnerability and encouraged informed planning and decision-making.

Conclusion. A community-scale assessment process guided by observation-based data can identify climate health impacts, raise awareness and encourage adaptive actions thereby improving the response capacity of communities vulnerable to climate change.

Brubaker, MY, Bell, JN, Berner, JE, Warren, JA. 2011. Climate change health assessment: a novel approach for Alaska Native communities. *Int J Circumpolar Health* 70(3):266-273.



Benjamin Jones, USGS

When a bluff erodes away, due to permafrost melting, an Alaskan cabin falls into the water

CONFERENCES & OPPORTUNITIES

1. *The 8th International Congress of Qualitative Inquiry (IQI2012)*, Date: May 16-19, 2012 (Submissions: From August 15 until December 1, 2011). Location: University of Illinois, Urbana-Champaign, Urbana, Illinois, USA. <http://www.icqi.org/>
2. *13th Workshop of Qualitative Research in Psychology*, Theme: Qualitative Research in Attention to Diversity, Date: March 11-14, 2012 (Submissions: until September 30), Location: The Achva Academic College of Education, Israel <http://www.qualitativepsychology.com/index.php?/info/info/>
3. *American Educational Research Association (AERA)*, Date: April 13-17, 2012, Location: Vancouver, British Columbia, Canada, <http://www.aera.net/>
4. *The 29th Annual Qualitative Analysis Conference (Qualitatives 2012)*, Theme: Cultures of Narrative/Narratives of Culture, Date: June 20-22, 2012, <http://www.qualitatives.ca/>
5. *The 3rd Qualitative Report Annual Conference*, Theme: Creativity and the Qualitative Researcher, Date: January, 13-14, 2012, Location: Nova Southeastern University, Florida, <http://www.nova.edu/ssss/QR/TQR2012/index.html>
6. *11th Annual Advances in Qualitative Methods*, <http://www.iiqm.ualberta.ca/en/Conferences/AdvancesinQualitativeMethods.aspx>
7. *Institute for Qualitative and Multi-Method Research, The Consortium on Qualitative Research Methods (CQRM)*, Location: Maxwell School, Syracuse University, http://www.maxwell.syr.edu/moynihan/cqrm/About_CQRM/
8. *Community-Campus Partnerships for Health will hold its 15th Anniversary Conference*, April 18-21, 2012 in Houston, Texas. The theme is "Community-Campus Partnerships as a Strategy for Social Justice: Where We've Been & Where We Need to Go". Register by February 3rd to receive discounted early-bird registration rates: <http://bit.ly/uLxLPf>

ENVIRONMENT, HEALTH AND SOCIETY PROGRAM UPDATES

1. On Sept. 30th, 2011, we cosponsored and co-hosted with the UCLA Luskin Center for Innovation the first ever national workshop on program evaluation for environmental justice, Closing the EJ Gap: Workshop on Advancing Evaluation Methods. Lisa Garcia, Senior Advisor to EPA Administrator on EJ spoke at the workshop and was so pleased with the workshop that she wants to replicate it in EPA Regions. See link for meeting summary report and presentations <http://luskin.ucla.edu/news/closing-environmental-justice-gap-workshop-advancing-evaluation-methods>
2. We announced the publication of a special issue of the American Journal of Public Health dedicated to environmental justice and environmental health disparities which included 15 technical papers that were presented at the EPA March 2010 Symposium. http://epa.gov/ncer/events/news/2011/10_25b_11_feature.html. See link to AJPH <http://ajph.aphapublications.org/>

Funding Available from EPA

Title: Sustainable Chesapeake: A Community-Based Approach to Stormwater Management Using Green Infrastructure

http://epa.gov/ncer/rfa/2012/2012_star_chesapeake.html

Open Date: 11/22/2011 - Close Date: 01/11/2012

Summary: The U.S. Environmental Protection Agency (EPA), as part of its Science to Achieve Results (STAR) program, is seeking applications proposing trans-disciplinary, integrated research that will advance scientific and practical understandings of how to promote and sustain effective, community-based stormwater management for reducing water-borne pollution entering Chesapeake Bay. EPA is specifically interested in funding research projects that engage lay persons and scientific experts in the co-development, trial, and objective assessment of innovative, locally tailored solutions to shared stormwater problems.



A Conversation with Daniel Sarna

EPA Science to Achieve Results (STAR) fellow Daniel Sarna knows that most science is ultimately a matter of numbers, and hard, concrete data. But when it comes to measuring the effectiveness of groups of people interacting with the environment, exact numbers may not be a way to tell the whole story. Efficiency in management can't be measured like temperature or other physical variables, it is far more subjective. That's why Sarna is working to develop good qualitative methods to determine how well different interested parties can manage the Klamath Basin of Northern California and Southern Oregon, showing how it takes more than numbers to judge environmental policy. "I'm looking at what works and what isn't working," Sarna said.

A PhD candidate in the Department of Environmental Science, Policy,

and Management at UC Berkeley, Sarna is interested in water resource management, especially watersheds. That kind of measurement isn't always as simple as measuring with numbers, a lot of it is based on how well the management systems worked for the people involved. Using the STAR grant, Sarna plans to specifically examine the way that the watershed of the basin is managed by the Karuk tribe in conjunction with organizations and agencies like the Forest Service. This includes management of dam works, water quality control and other key issues. "I want to improve the knowledge and management of the area," he said. Sarna chose the watershed over other resource management areas because of its integration in so many aspects of life in the basin. Water is used for crops, hydroelectric power, drinking water, river tourism and to

support the wildlife and fisheries. "It best encompasses tribal resource values he said. For the Karuk, the watershed represents the ecological processes upon which their culture, community health, food security and local economy depend." Returning to their ceremonies and culture is part of the process the Karuk are taking to improve the ecology. Not only will a healthy watershed improve the natural ecosystem, but it has positive implications for the local economy and jobs in resource management.

Over the next three years, using surveys and open-ended interview techniques he developed himself, Sarna will talk to tribe members and others about their experiences, as well as examine records from management forums and agreements between the Karuk and the Forest Service EPA, FERC and

other groups, along with court cases brought by the tribe and other reports covering different groups that have some of decision-making power over the watershed. After gathering his information, Sarna will analyze the different channels the agencies and tribe go through to manage the watershed work. Sarna said he will combine institutional analysis with methods drawn from science and technology studies to look at how the how different claims are verified. "I chose these methods because, rather than taking science

at face value, they take a detailed look at the social practices and institutional factors that determine how knowledge is generated, validated and made to serve as the legitimate basis for collective action," he said. Not all the data he gathers will be qualitative; some of the benchmarks for successful management can be measured numerically, such as the river water temperature, which has to be within certain limits when fish are migrating. "Through looking at progress monitoring reports, I am able to see whether or not institu-

tions have been able to meet their goals," Sarna said.

The qualitative work is where he will be breaking new ground however, and, depending on how his research goes, could have a much wider impact than in just the Klamath Basin. Based on what he finds and the recommendations he makes, other watersheds managed by more than one organization might start to incorporate his ideas. "There's a lot of potential in the arrangements for managing other watersheds," he said.

Eric Schwartz, Human Health Division, NCER

Science to Achieve Results

NCER's Science to Achieve Results, or STAR, program funds research grants and graduate fellowships in numerous environmental science and engineering disciplines through a competitive solicitation process and independent peer review. The program engages the nation's best scientists and engineers in targeted research that complements EPA's own outstanding intramural research program and those of our partners in other federal agencies. In addition, through this same competitive process, NCER periodically establishes large research centers in specific areas of national concern. At present, these centers focus on children's health, hazardous substances, particulate matter, and estuarine and coastal monitoring.

More information available at

<http://www.epa.gov/ncer>



US FISH AND WILDLIFE SERVICE



RESOURCES AT YOUR FINGERTIPS

NSF Workshop Report (General guidance on developing QR projects)

<http://www.nsf.gov/pubs/2004/nsf04219/nsf04219.pdf>

Qual Page, The site has many resources about qualitative research and is regularly updated,

<http://www.qualitative-research.uga.edu/QualPage/conferences.html>

Courses

QualQuant is a site dedicated to social research methods—qualitative and quantitative alike. Register for FREE and have access to all materials from the various summer courses for students and faculty.

<http://qualquant.org/>
http://phs.ucdavis.edu/downloads/EPI298_Paterniti_071007.pdf

<http://webspace.ship.edu/cgboer/qual-meth.html>

<http://www.maxwell.syr.edu/moynihan/cqrm/Welcome/>

<http://www.public.asu.edu/~kroel/www500/Interview%20Fri.pdf>

http://faculty.uccb.ns.ca/pmacintyre/course_pages/MBA603/MBA603_files/IntroQualitativeResearch.pdf

<http://www.okstate.edu/ag/agedcm4h/academic/aged5980a/5980/newpage21.htm>

Training Programs

http://www.jhsph.edu/refugee/publications_tools/publications/qualresearch.html

University of Alberta, International Institute for Qualitative Methodology,

<http://www.iiqm.ualberta.ca/en.aspx>

EPA Desktop Library

For EPA staff, visit on the intranet EPA Desktop library which has an automatic “search” for articles re environmental justice, health disparities and community-based participatory research. See <http://intranet.epa.gov/desktop/communities.html>

Funding

EPA Extramural Funding from National Center for Environmental Research (NCER), http://www.epa.gov/ncer/General_funding_listings, http://www.socsci.uci.edu/~sgsa/info_help/funding_qual_research.pdf